

REMARKS

Applicants appreciate the thoroughness with which the Examiner has examined the foregoing application. Reconsideration is requested in view of the remarks below.

Applicant agrees with the list of pending claims, however, would like to clarify that claims 98 and 99 are canceled, not withdrawn from consideration.

The claims have been amended. Support can be found in the specification at pg. 7, ll. 7-8; pg. 7, l. 21 to pg. 8, l. 2; pg. 9, ll. 5-8 and 19-22; and pg. 10, ll. 6-9.

No new matter has been added.

Claim Rejections - 35 USC § 112

The Examiner has rejected claims 8, 9, 20, 21, 85-89, 92, 101-105, and 108 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Applicant has amended such claims to clarify that the fibrillated lyocell fibers have the claimed Canadian Standard Freeness prior to carbonization. Also, the claims have been amended to correct for the limitation of 'selected ones of ... fibers'.

In view of these amendments, it is respectfully submitted that the rejection under 35 U.S.C. 112, first paragraph, is now moot.

No new matter has been added.

Double Patenting

The Examiner has provisionally rejected claims 8, 16, 20 and 100 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5, 6, 7, 11, 20, 41 and 43 of copending Application No. 10/640,889, and claims 1-25 of copending Application No. 10/666,878. The Examiner states that although the conflicting claims are not identical, they are not patentably distinct from each other

because the claims recite substantially the same subject matter, that is, fibrillated fiber sheets with an anti-microbial agent.

Upon the indication of allowable subject matter, applicant will submit a properly executed terminal disclaimer.

Claim Rejections - 35 USC § 103

The Examiner has rejected claims 8, 9, 21, 85-89, 93-97, 100 -105 and 108 under 35 U.S.C. 103(a) as being unpatentable over Giglia (U.S. Patent No. 4,929,502) in view of Arons et al (U.S. Patent No. 4,21 7,386) and Sawan et al (U.S. Patent No. 5,681,468). Applicant disagrees with such rejection for the following reasons.

As has been recognized by the Examiner, Giglia does not teach or suggest a microbial interception enhancing agent on selected fibers. It is submitted that Giglia is limited to fibrillated fiber precursors defined by their Canadian Standard Freeness in combination with their Tensile Strength when formed into a sheet. (Abstract.)

The Examiner continues to cite Sawan (U.S. Patent No. 5,681,468) to overcome this deficiency. The Examiner states that Sawan teaches a liquid dispenser with sterile filter wherein the filter has at least a partial coating of a microbial interception enhancing agent, which is a metal coating or a metal -amine complex. (Col. 3, ll. 39-55; col. 10, ll. 9-14.) The Examiner also cites column 3, lines 45-50 stating that Sawan teaches 'at least partially coated'. Again, the Examiner states that it would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Sawan in the teaching of Giglia to have a filter material with antimicrobial characteristics as taught by Swan for protective coating and filtering applications as taught by Giglia (see column 1 lines 29-35).

Applicant disagrees and submits that Sawan (U.S. Patent No. 5,681,468) does not overcome the deficiencies of Giglia (U.S. Patent No. 4,929,502).

As recited, the independent claims of the foregoing application are all directed to sheets comprising activated, carbonized fibrillated fibers, preferably lycoell fibers, and a microbiological interception enhancing agent. The microbiological interception enhancing agent comprises a biologically active metal precipitated with a counter ion of a cationic material, whereby the cationic material is adsorbed on at least a portion of the activated, carbonized fibrillated fibers, to form a metal colloidal precipitate complex on a portion of a surface of at least some of the activated, carbonized fibers.

Applicant brings to the Examiner's attention that the fibers of the present sheet are activated carbon fibers. Applicant submits that the activated carbon fibers (i.e., the adsorbent) provide the present sheets with strong electrostatic forces for physical adsorption of the cationic material (i.e., the adsorbate) onto a portion of a surface of at least some of the nanofibers of the sheet. Van der Waals forces between the cationic material (i.e., the adsorbate) and the activated carbon fibers (i.e., the adsorbent) of the present sheets enable the physical adsorption of the cationic material onto the activated carbon fibers. As is claimed, this adsorbed cationic material has counter ions associated therewith, whereby a biologically active metal is caused to precipitate with such counter ions, in direct proximity to the adsorbed cationic material, to form a metal colloidal precipitate complex on a portion of a surface of at least some of the activated, carbonized fibers.

It is respectfully submitted that Sawan (U.S. Patent No. 5,681,468) does not disclose such limitations. Rather, Sawan discloses a liquid dispenser that has a filter, e.g., an organic filter or inorganic filter, which has been coated on at least one surface,

and also at least partially coated within a plurality of its pores, with a metallic material, e.g., a metal or metal oxide or metal salt, that is bacteriostatic or bacteriocidal. (Abstract and col. 2, ll. 11-15 and 54-67.) In so doing, Sawan requires pretreatment of the organic or inorganic filter with either a carbonyl compound (see, col. 4, ll. 7-17 and col. 9, ll. 10-42) or an activator (see, col. 4, ll. 18-24 and col. 10, ll. 15-27.)

In more detail, discloses that its filter is contacted with a carbonyl compound (e.g., an aldehyde such as glutaraldehyde, a sugar such as glucose, or an aldehyde functionality generating compound), followed by contact with a metal salt solution and an amine-containing compound. The carbonyl compound reduces the metal ion to metal (e.g., silver ion is reduced to metallic silver) so as to deposit the metal on the filter surface and within pores of the filter. (Col. 9, ll. 10-52.) The metal coating preferably has a uniform metal coating thickness on the surface and within the pores of the filter. (Col. 9, ll. 44-52.)

As an alternative, Sawan discloses that its filter may be contacted with an activator comprising a salt of a metal including, e.g., tin, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper, zinc, germanium, selenium, zirconium, niobium, molybdenum, technetium, ruthenium, rhodium, palladium, antimony, tellurium and lead, with the preferred activator being tin dichloride. Once the activator is provided on the filter, the filter is then contacted with a metal salt solution, with or without an amine-containing compound, so as to deposit the metal on the surface and within the pores of the filter. (Col. 4, ll. 18-24, and col. 10, ll. 15-27 and Example 12 at col. 15, ll. 13-34.)

Applicant submits that Sawan does not disclose, contemplate or suggest that filters, or any part of its filters or membranes, are activated carbonized fibers or filters.

Again, Sawan requires, as exemplified in the examples disclosed therein, its filters or membrane be pretreated with a carbonyl compound or an activator prior to contacting the filter with the bacteriostatic or bacteriocide for the deposition of the metal on its filters and/or membranes. (See, col. 11, l. 40 to col. 15, l. 30.) As such, Sawan does not disclose or suggest activated carbon fibers having a cationic material, with a counter ion associated therewith, adsorbed onto at least a portion of the fibers whereby a biologically active metal has precipitated with the counter ion of the cationic material to form a metal colloidal precipitate complex on a portion of a surface of at least some of the activated, carbonized fibers, as is currently claimed.

The Examiner also asserts that Arons teaches carbonizing the sheet to obtain activated carbon in the sheet, and use of rayon as the precursor fabric. (Abstract, col. 3, ll. 1-13; col. 4, ll. 10-17.) The Examiner states that it would have been obvious to one of ordinary skill in the art at the time of the invention to use the well-known teaching also for the activated carbon sheet, particularly as in claim 9, for such applications as chemical protective clothing, as taught by Giglia.

Applicants disagree and submit that the present invention would not be obvious to one of ordinary skill in the art at the time of the invention since none of the cited references, alone or in any proper combination thereof, disclose or suggest sheets of activated, carbonized fibrillated fibers and a microbiological interception enhancing agent that comprises a biologically active metal precipitated with a counter ion of a cationic material, whereby the cationic material is adsorbed on at least a portion of the activated, carbonized fibrillated fibers, to form a metal colloidal precipitate complex on a portion of a surface of at least some of the activated, carbonized fibers. The cited Arons patent does not contemplate or suggest that a microbiological interception

enhancing agent can reside on a portion of a surface of at least some of activated, carbonized fibers of a sheet.

Applicant continues to submit that it is only applicant's disclosure that teaches a microbiological interception enhancing agent on a portion of selected activated, carbonized fibrillated fibers, which of course, is improper as a hindsight reconstruction of applicant's invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983) (Hindsight based on reading of the patent in issue may not be used to aid in determining obviousness). None of the cited references suggest doing what Applicant has done. *In re Skoll* (CCPA 1975) 187 USPQ 481. (The cited references, and not in retrospect, must suggest doing what Applicant has done.) Likewise, hindsight and the level of ordinary skill in the art may not be used to supply a component missing from the prior art references. *Al-Site Corp. v. VSI International, Inc.*, 174 F.3d 1308, 1324, 50 USPQ2d 1161, 1171 (Fed. Cir. 1999).


Further, the Examiner continues to assert that the terms 'fibrillated' and 'carbonized' are part of the process of making, and are not patentable, therein citing *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Applicant disagrees since these limitations do not define the method of production, but rather impart distinct structural characteristics to applicant's invention. These limitations clarify that the fibers in the present invention are fibrillated fibers and that such fibrillated fibers contain carbon (i.e., carbonized). Applicant submits that it is the structure implied by the process steps that should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive

structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "etched" are capable of construction as structural limitations).

In view of the foregoing, applicant continues to submit that the present invention is not obviousness over the cited references of Giglia in view of Arons and Sawan since none of these references, alone or in combination, disclose, contemplate or suggest a microbiological interception enhancing agent residing on a portion of selected carbonized fibrillated fibers as is currently claimed. It is only applicant's disclosure that teaches a microbiological interception enhancing agent on a portion of selected carbonized fibrillated fibers, which of course, is improper as a hindsight reconstruction of applicant's invention.

It is respectfully submitted that the application has now been brought into a condition where allowance of the case is proper. Reconsideration and issuance of a Notice of Allowance are respectfully solicited. Should the Examiner not find the claims to be allowable, Applicants' attorney respectfully requests that the Examiner call the undersigned to clarify any issue and/or to place the case in condition for allowance.

Respectfully submitted,



Kelly M. Nowak
Reg. No. 47,898

DeLIO & PETERSON, LLC
121 Whitney Avenue
New Haven, CT 06510-1241
(203) 787-0595